

## HOW I DO IT

# Abdominoperineal Resection by Ultrasonic Shears Without Blood Loss and Ligatures

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### TECHNIQUE

It is well known that one of the most frequent complications in abdominoperineal resection (APR) for rectal cancer is hemorrhage during operation. Last year in our departments we used the ultrasonic scalpel to minimize blood loss and to avoid transfusions. This scalpel operates on the basis of conversion of the electrical energy to mechanical (ultrasound) energy at the handpiece, so the blade vibrates with a frequency of 55,500 Hz. Using this scalpel, we have a synergy of effects, which are dissection, cutting, cavitation, coaptation, and coagulation [1]. All these effects depend on the synergy of the operation level (1–5), blade configuration, tissue tension/pressure, and time of energy application. In the abdominal phase, the dissection is made by ultrasonic scalpel. All vessels, peritoneum, fat, and ligaments above and below the fascia of Denonvillier are divided, the blade being in the sharp, blunt, or flat configuration (Fig. 1), in a three-level operation with light tension of tissue by the surgeon's

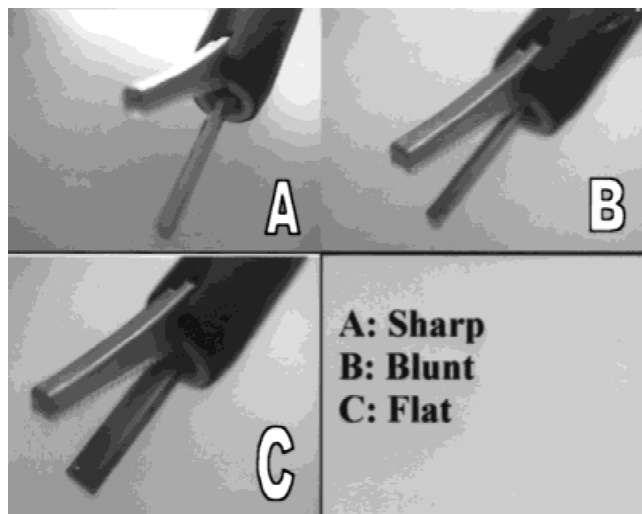


Fig. 1. Positions of ultrasonic blade in three modes. A: Sharp mode. B: Blunt mode. C: Flat mode.

More tissue tension	♦ Faster cutting ♦ Less hemostasis	More power Level 5	♦ Faster cutting ♦ Less hemostasis
Less tissue tension	➤ Slower cutting ➤ More hemostasis	Less power Level 3	➤ Slower cutting ➤ More hemostasis

Sharper blade	♦ Faster cutting ♦ Less hemostasis	
Blunt surface	➤ Slower cutting ➤ More hemostasis	

Fig. 2. The results of the various operations of the ultrasonic blade according to the tissue tension by the surgeon's hand, the magnitude of the power, and the sharpness of the blade.

hand (Fig. 2). In the perineal phase, the perianal and ischiorectal fat, the ileococcygeus part of the levator ani muscle, and the fascia of Waldeyer, with all vessels of these structures in any level, are divided by ultrasonic scalpel with the same way.

The use of ultrasonic scalpel in APR seems to be ideal because it reduces blood loss, saves time and money, reduces clips, ties, or ligatures, and causes no thermal injury of tissue [2]; no blood transfusion is needed, as happened to our previous 14 patients with APR.

### REFERENCES

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